

## **Case Study: Swinomish Climate Change Initiative - Climate Adaptation Action Plan**

(Source: Swinomish Indian Tribal Community Office of Planning and Community Development 2010. Swinomish Climate Change Initiative Climate Adaptation Action Plan. [http://www.swinomish-nsn.gov/climate\\_change/climate\\_main.html](http://www.swinomish-nsn.gov/climate_change/climate_main.html))

### Background

- Short background on the community. Identify target species, gears or vessels used in fisheries, how large the fisheries are, etc.

In the fall of 2008 the Swinomish Indian Tribal Community started work on a landmark two-year Climate Change Initiative to study the impacts of climate change on the resources, assets, and community of the Swinomish Indian Reservation and to develop recommendations on actions to adapt to projected impacts. There are upwards of 1,300 homes on the Reservation, and total Reservation population is estimated at somewhat over 3,000. Under the guidance and coordination of the Swinomish Office of Planning & Community Development, the first year of the project was devoted to assessment of projected impacts, as presented in an Impact Assessment Technical Report issued in the fall of 2009. The second year of the project was focused on evaluation of strategies and options for recommended actions to counter identified impacts. The ultimate goal of the project was to help ensure an enduring and climate-resilient community that can meet the challenges of anticipated impacts in the years to come.

### Problem Statement

The initiative focused on a range of threats and potential problems associated with climate change including impacts on fishing and aquaculture but also on agriculture and human health. Threats of particular concern for fisheries and aquaculture include inundation from sea level rise and storm surges and associated loss or decreased viability of habitat. Ocean acidification was also noted as a threat to shellfish, as was temperature change for salmon. The tribe is particularly concerned about threats to shellfish (clams, crabs, oysters, shrimp, mussels) and salmon which have a strong cultural, as well as economic and nutritional, importance. In addition to viability of shellfish resources, the tribe is concerned about increased incidence of toxic shellfish due to toxic algal blooms. Traditional foods such as salmon and shellfish are “cultural keystone” aquatic species to the Tribe; much more than a food source, these foods are a vital contribution to the cultural, spiritual, and social life of tribal members (Garibaldi and Turner 2004). Shellfish can be harvested year-round, providing a stable, high protein food source. Individual beaches are treasured for their shellfish populations and are maintained to avoid over-harvest. Loss of a traditional food is directly related to loss of morale, and cultural health and well-being (Arquette et al. 2002; Kuhnlein and Receveur 1996).

### Planning Process

While acknowledging the importance of action to mitigate the causes of climate change, the Tribe consciously directed the approach for this project toward adaptation actions to counter the anticipated effects of climate change on the Reservation community, given the geographic characteristics and coastal location of the Reservation that makes it particularly vulnerable to potential impacts. The project was structured over two years, beginning in late 2008, with the first year devoted to detailed assessment and analysis of climate change impacts. The Swinomish Office of Planning & Community Development provided the core staff team to manage and carry out project activities. To assist with complex analysis of myriad scientific issues, the Tribe enlisted the support of the University of Washington Climate Impacts Group (CIG), a premiere regional climate research entity. Anticipating issues for residents in low-lying areas of the Reservation as

well as critical issues reaching off-Reservation, a Strategy Advisory Group was formed consisting of representatives from Skagit County, the Town of LaConner, and the Shelter Bay Community (a 900-unit residential development on leased tribal land).

In addition, a community outreach effort was begun through formation of a tribal outreach group, assisted by a Communications Facilitator retained by the Tribe. The aggregate intent and ultimate goal of the project was to help ensure an enduring and climate-resilient community that can meet the challenges of anticipated impacts in the years to come. The primary tasks for the first year's work consisted of: 1) scoping and technical assessment of potential impacts, based on analysis of numerous scientific models and data; 2) mapping of "risk zones" and inventory of assets and resources within those zones; 3) a vulnerability assessment of the Reservation community and resources, based on the identified impacts; 4) a risk analysis of potential impacts, based on the completed vulnerability assessment; and 5) preliminary scoping of potential strategy and policy issues.

During the second year of the project, the staff team continued working with CIG, the advisory group, and community group, as well as key staff in various disciplines, to assess potential strategy options for targeting to identified impacts. Tasks for this strategy assessment included: 1) identification of applicable adaptation goals; 2) evaluation of a wide range of potential strategy options in multiple categories for application to given impacts; 3) development of proposed recommendations for adaptation strategies across the spectrum of impacts; and 4) consideration of policy issues for implementation, such as coordination, timing, and funding.

For the Swinomish Climate Change Initiative, community-based response evolved into creation of the Climate Change Education and Awareness Group (CCEAG), facilitated by Shelly Vendiola, who was retained as the project's communications and outreach facilitator. CCEAG was established to assist with communication of complex issues to the community and gathering of input on tribal perspectives toward climate change issues. This work entails establishment of an *honorable engagement* process for the Swinomish community by raising awareness of climate impacts on the tribal community, and it opens a pathway for community input to inform and guide policy and decisions about how the tribe will adapt and prepare to deal with the impacts of climate change.

CCEAG has met regularly and has participated in community-wide events to raise awareness about climate change and share information about future efforts for community education and empowerment. The group conducted a series of community meetings and interviews to bring people together to talk about changes they have seen, as well as hopes and concerns. Fact sheets and tribal newsletter articles were developed based on project reports and activities to communicate and summarize the general impacts to the Swinomish Reservation residents and surrounding areas.

### Action Plan and Implementation

The planning process identified a range of strategies and specific actions to forestall or adapt to impacts of climate change. These include protection of land from inundation (with armoring) as well as planned retreat (including removal of bulkheads and riprap that prevent shoreward migration) and acquisition of new land. As mentioned above, the planning process went well beyond a focus on marine fisheries and aquaculture but the following actions related to marine fisheries and aquaculture were planned:

- Land acquisition for shoreward migration
- As an experimental option, shellfish could be seeded in upland operations to allow for proper growth and development under controlled conditions. Once they reach sufficient size and maturity, they could be transplanted to established beds.
- Shoreward habitat migration, reestablishment of shellfish beds further inland as sea-level rises
- Pocket estuary restoration to protect habitat for out-migrating salmon.

- Strengthen traditional food roles to identify whether seafood is safe

### Conclusion

The tribe also takes a very long-term view toward planning with duty to conserve resources for future generations. The Swinomish tribe have a strong dependence on living marine resources that reflects not only their importance for livelihoods and nutrition (both of which are highly important) but also a cultural dependence on the shellfish and salmon harvested on and around the reservation. This may tend to restrict the tribe's ability or desire to substitute away from threatened resources in terms of consumption and livelihoods and increase the importance of strategies that will protect the viability of these resources.

A number of adaptation projects were proposed for the short-term (1-5 years) mainly relating to research and zoning activities as well as education and outreach. Potential sources of funding were identified. I could not find information on what activities have actually been implemented in support of the plan.